



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/563,247

01/04/2006

Young Min Kong

29137.137.00

8677

30827

7590

04/14/2009

MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC 20006

EXAMINER

WIESE, NOAH S

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

04/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,247	Applicant(s) KONG ET AL.	
	Examiner NOAH S. WIESE	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 5-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

1. The claims 1-12 are pending and presented for the examination. Claims 5-12 are withdrawn and claims 1-4 are elected for examination on merits.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed with the application.

Information Disclosure Statement (IDS)

3. The information disclosure statement (IDS) was submitted on 03/28/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. Please refer to applicant's copy of the 1449 herewith.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Provenzano et al (US 6007926).

Art Unit: 1793

Regarding **claim 1**, Provenzano et al teaches stabilized zirconia containing sintered particles of alumina and zirconia. Provenzano teaches that zirconia and alumina powders having particles sizes of less than 30 nm are mixed together to form a dried suspension. Provenzano et al teaches that this dried suspension can be reduced to powder (see column 4, lines 45-48). Provenzano further teaches an example wherein this powder is produced using starting (secondary) particulate powders having particle sizes of 10 nm for both the zirconia and alumina powders (see examples 1-2). Therefore, Provenzano teaches a composite powder formed of starting (secondary) particles having particle sizes that meet the limitations of claim 1, and the claim is anticipated by the prior art.

Regarding **claim 2**, Provenzano et al teaches in the above-cited examples that the amounts of alumina in the binary mixture were 10%, 50%, 40%, and 30% by volume, respectively. These volume percentages meet the zirconia/alumina weight ratio limitation of instant claim 2.

6. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fothergill (US 5081081).

Regarding **claim 1**, Fothergill teaches a stabilized composition suitable for use in the manufacture of a ceramic material, said composition being a powder comprising zirconia and 1-10 wt% alumina (see Abstract). Fothergill teaches that the powder is made by oxidizing precursors of zirconia and alumina (see claim 11) and that the resulting zirconia-alumina composite powder has a crystal size of 20 nm and 30 nm (see examples 1 and 3). Although the crystal size of the zirconia and alumina powders

Art Unit: 1793

were not individually measured, it necessarily follows that the powder sizes would be within the range of 10-20 nm for example 1 and 10-30 nm for example 2. The composite powder has a particle size that is dependent on the particle sizes of the zirconia and alumina (secondary) powders. Since Fothergill does not teach any step, such as a heat treatment, that would cause a large amount of particle (grain) growth, the particle size of the composite powder is necessarily close to the particle sizes of the individual powders. Additionally, the particle sizes of the zirconia and alumina powders could clearly not be greater than the 20 and 30 nm sizes of the composite powder. Therefore, the Fothergill powders are made from secondary particles that meet the size limitations of claim 1.

Further, the limitations of claim 1 that are drawn to the sizes of the secondary particles from which the nano-composite powder is made are product-b—process limitations. The claimed nano-composite powder could be made by a method other than that defined by the process steps of claim 1, and thus the product-by-process limitations do not themselves hold patentable weight when defining the claimed powder over the prior art. The limitations of claim 1 are anticipated by or obvious in view of the teachings of Fothergill.

Regarding **claim 2**, as discussed above, Fothergill teaches that the composite powder contains 1-10 wt% alumina, a ratio range of 99:1-9:1.

Regarding **claim 3**, Fothergill teaches that the zirconia contains a stabilizing agent that is yttria, magnesia, calcia, or ceria (see claim 8).

Art Unit: 1793

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fothergill (US 5081081).

Regarding **claim 4**, the claim differs from Fothergill as discussed above because Fothergill does not teach the specific amount of stabilizing agent. However, Fothergill teaches that the powder comprises at least 85 wt% zirconia and 1-10 wt%. Given these percentages, powders could be produced that met the Fothergill limitations and contained as much as 14 wt% stabilizing agent. From these teachings, it is clear that one of ordinary skill in the art would have chosen an amount of stabilizing agent that falls within the exceedingly large range of instant claim 4. Thus, claim 4 is obvious and not patentably distinct over the prior art of record.

Conclusion

10. No claim is allowed.
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noah S. Wiese whose telephone number is 571-270-3596. The examiner can normally be reached on Monday-Friday, 7:30am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A. LORENZO/
Supervisory Patent Examiner, Art Unit 1793

Noah Wiese
09 April, 2009 AU 1793